



VDSL Hospitality Setup Guide

For 100 Rooms or Less



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Zyxel VDSL Hospitality Setup Guide for 100 Rooms or Less

Subscriber Gateway

- VSG-1200

VLAN Switch

- ES-2008 (8 ports)

VDSL DSLAM

- VES-1124

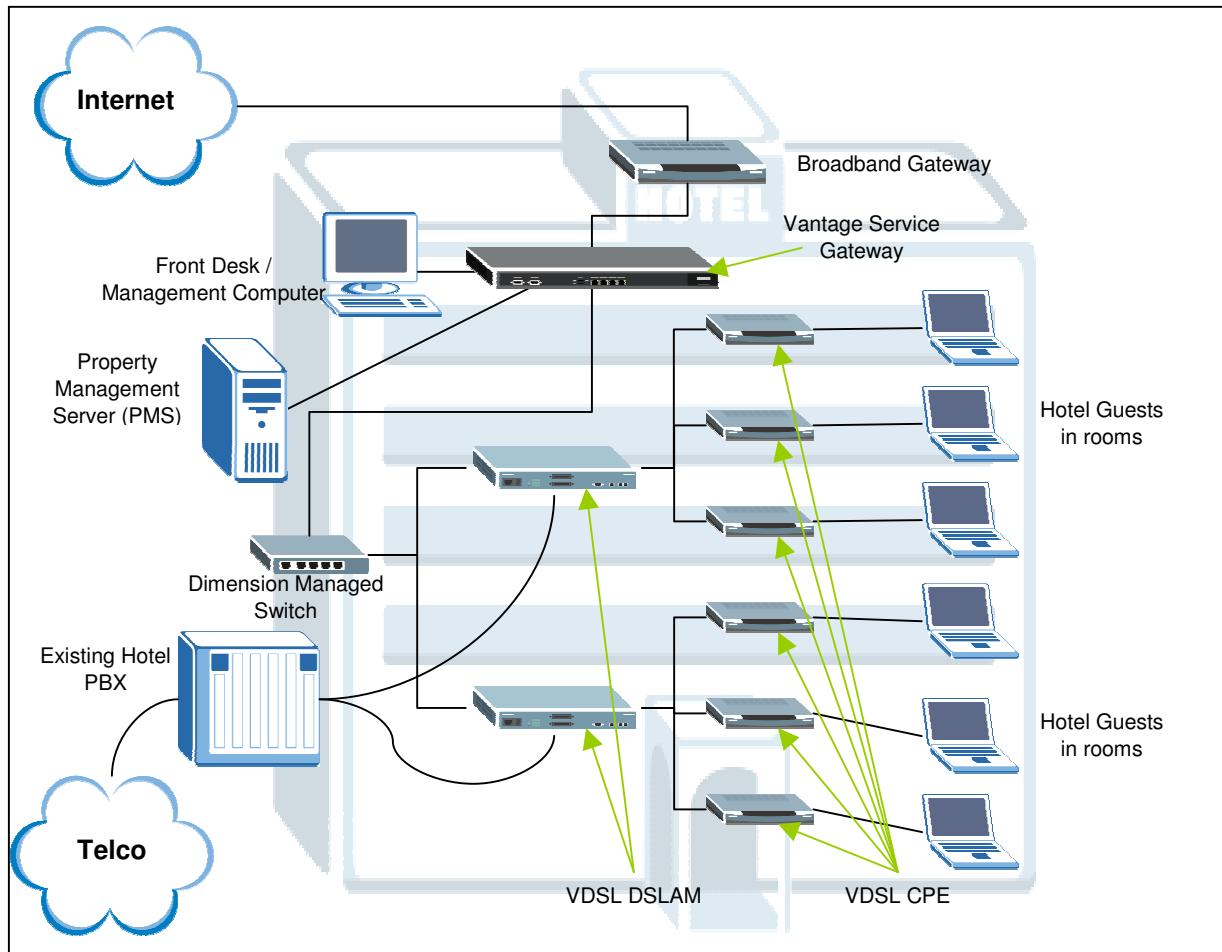
VDSL Modem

- P841-25

Getting Started

What is the network topology in the hotel?

Nowadays, most of hotels support the Internet service for customers. Some hotels provide the service for free, while others charge users for service. Normally, the hotel's Internet service topology includes a broadband modem, subscriber gateway, managed switches, and an in-room solution. The diagram below displays a typical topology for a hotel DSL network.



How to integrate the VSG-1200, ES-2008 and VES-1124

Here, we will guide you to configure the VSG-1200, ES-2008 and VES-1124 step by step. You can refer these procedures to finish the environment easily, and provide the Internet service to your customer.

Before You Begin

Before you begin installation, it's important to understand how the equipment is designed to work and how it should be installed.

Why VDSL?

VDSL stands for Very fast Digital Subscriber Line. It is a form of DSL that allows for traffic throughput of up to 15Mbps.

Although this is not as fast as the speed of Ethernet, which is usually 100Mbps and now available up to 1000Mbps, it can travel farther. Ethernet is limited to a maximum cable length of about 300 feet, whereas VDSL can transmit on cable lengths up to about 4500 feet.

Like ADSL, VDSL allows use of voice and data on the same 2-conductor line. This means that a hotel can leverage their existing cable infrastructure to provide guests with high-speed Internet, without the additional cost of installing new wiring. Each room only needs a single pair of wire for both voice and high-speed data.

Unlike ADSL, all configurations to the remote modems are done from the VDSL switch. This means that there is less time spent configuring units, and fewer chances for miss-configuration. Customers also cannot accidentally change the settings on the modem, since the VDSL switch programs the modem itself.

VDSL basics

To install VDSL, you must have two pieces of equipment:

- A VDSL concentrator, also known as a VDSL Digital Subscriber Line Access Multiplexer (DSLAM) or VDSL Central Office Equipment (COE)
- A VDSL modem, also known as a VDSL Customer Premise Equipment (CPE)

The DSLAM is normally mounted inside a telephone closet, along with the hotel's existing telephone PBX. In each room, a VDSL modem is installed to which customers connect their computers via Ethernet port.

Normal DSLAMs require multiple chassis and cards to operate. However, the VES-1124 is a self-contained DSLAM capable of connecting up to 24 VDSL modems to your Internet connection. The VES-1124 requires no additional chassis or splitters for operation.

In each room a VDSL modem is placed. The modem has an input from the wall outlet, and two outputs: one phone port for an analogue telephone, and an Ethernet port for a computer connection. Because all of the parameters are programmed in DSLAM, the modem has no settings to configure.

Installation

Telephone closet preparation

One of the trickiest parts with setting up a VDSL network is integrating it with the existing telephone service. Although the ISP will usually take care of installing the Internet connection where you need it, they will not help you install it with your in-building DSL solution.

Typically the telephone company providing the building's voice service will contract installers to set up and maintain in-building voice equipment and PBXs. Therefore, you will probably need to contact your telephone company to have the contractor help install the necessary connectors for your voice service, if they are not already present.

The input and output for all Zyxel DSL DSLAM equipment is a standard Telco-50 connector. These connectors are trapezoidal in appearance and contain 50 pins, which are paired up to provide the necessary pair to each user or room. The contractor will need to terminate all connections coming from the PBX to Telco-50 connectors in order for them to be properly connected to your VES equipment. Also, the connections going to each room will also need to be terminated with Telco-50 connectors.

Typically, all of the PBX and room lines will be connected to a Main Distribution Frame (MDF) inside of the telco closet. The MDF usually consists of two parts: an upper block for the incoming lines, and a lower block for outgoing lines to users. These may or may not already be terminated into Telco-50 connectors. Your Telco-50 connectors will most likely be installed into this MDF. When wiring these Telco-50 connectors, it is important that they be wired for the correct pin-outs, as explained below.

Proper Pin-Outs

The pin-outs for the Telco-50 connectors will depend on the VES equipment being used. Here is an example pin-out from the VES-1124 DSLAM:

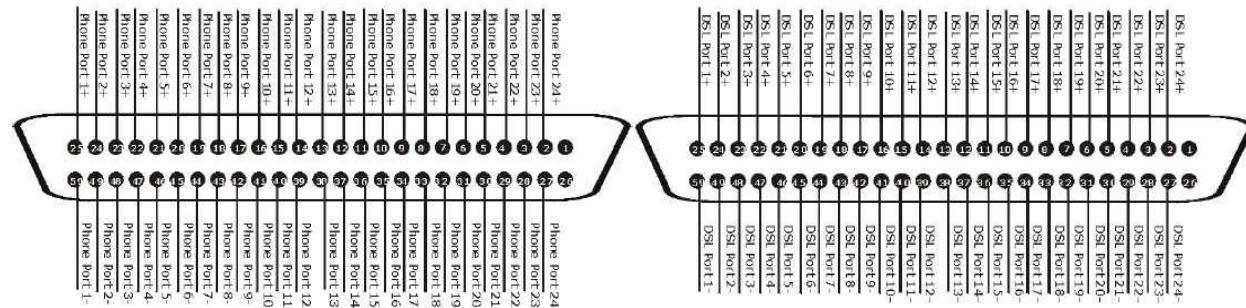


Diagram 2 CO Telco-50 Pin Assignments

Diagram 1 Line Card, Splitter Card and USER Telco-50 Pin Assignments

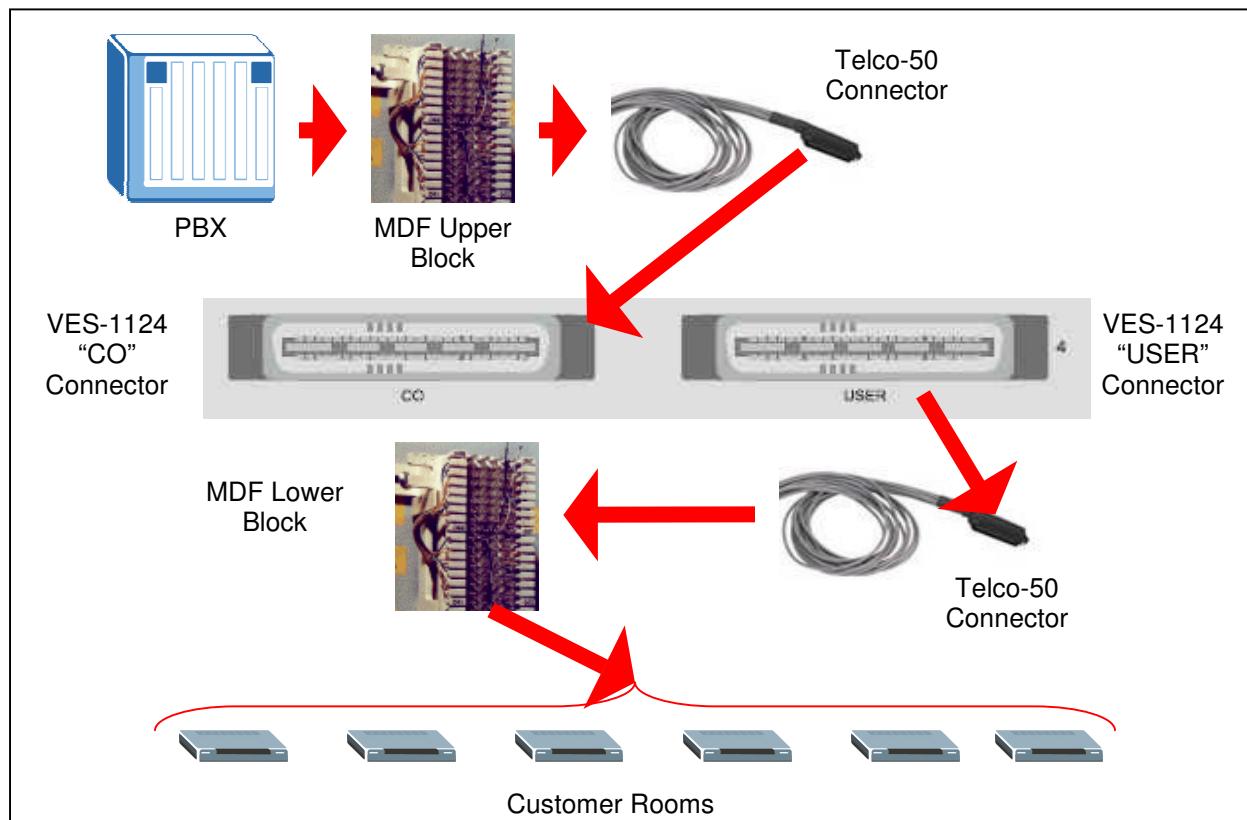
Pin-outs are located in the Appendix section of your unit's User's Guide. Please be sure to have the contractor refer to these when installing your Telco-50 connectors; otherwise, your VES installation will not work properly.

For more information on with connectors apply to the PBX and to room connections, please read the next section.

Connecting everything together

Once you have the proper Telco-50 Connectors in place, and the Internet connection has been installed, you should be ready to connect your equipment.

1. First you should connect your modem to your internet connection (cable, DSL, T1, T3, etc.) if the ISP has not already done so. If you require assistance in doing this, contact your ISP for further help.
2. Once the modem is installed, connect your VSG-1200 to the modem via Ethernet cable. From the LAN ports of the VSG, you will need to connect your ES-2008 managed switch via another Ethernet cable. You may also connect management and employee computers to the other LAN ports on the VSG per your preference.
3. From the ES-2008, you will connect your VES-1124. Each VES-1124 will have its own Uplink ports (ports 25 and 26). One of these ports will need to be connected to one of the ports on the ES-2008 via Ethernet cables.
4. Each VES-1124 supports up to 24 lines or rooms. If you have more lines or rooms than this, you may connect and set up multiple VES-1124s, so long as they all connect back to the ES-2008 switch. Using the ES-2008, you can connect up to seven VES-1124s (since one port on the switch connects back to the VSG-1200).
5. Next, you will need to connect the telephone lines to the VES-1124. On the front of the VES-1124, there are two Telco-50 ports. The once marked "CO" will be the incoming voice lines from the building's PBX. The once marked "USER" is the outbound port for the lines going to each room. Below is a basic diagram of you the voice service is connected through the splitter chassis's rear connectors.



6. Once you connect the rooms to the VES-1124 via the Telco-50 cables, each room's telephone port should be ready for modem installation. Install a Prestige 841 VDSL modem in each room by connecting the unit's "VDSL" port to the room's telephone wall jack. You can then connect the room's phone to the "Phone" port on the back of the P841 for voice service. You should then connect small length of Ethernet cable to each modem's "LAN 10/100M" port for the customer's computer use. This way the P841 can split voice and data traffic, allowing room customers to use the phone and Internet simultaneously.
7. Remember that all of your components will require their own power connection for operation, to include each P841 modem in each room. Each unit will be supplied with the appropriate cables or power adapters. Please ensure all units are powered on when in use.
8. If you are using a Property Management System (PMS) to track customer room charges, you may want to connect this to the PMS port of the VSG-1200 as well. Although this document does not describe how to set up the VSG-1200 for use with a PMS, you can find more information about this in the VSG-1200 User's Guide.

Be sure to use the diagram on page 3 as a basic reference for installation.

You should now be ready to configure your VSG-1200, ES-2008, and VES-1124 for use. For more information about hardware installation, we strongly urge you to review the User's Guides for the VSG-1200, ES-2008, and VES-1124.

Configuration

How to setup the VSG-1200

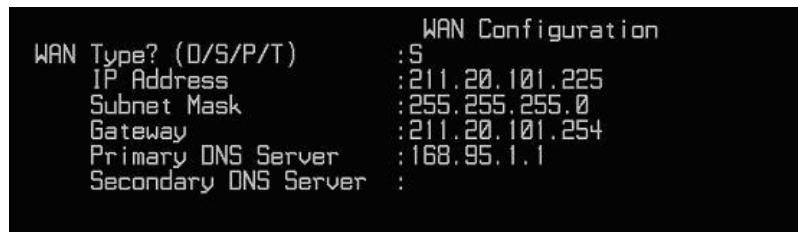
We'll begin be setting up the VSG-1200 service gateway. This will act as the gateway for all users.

IP address setup

1. Please plug the console cable into the VSG-1200, and connect it to serial port on your PC.
2. Run a terminal tool (ex, HyperTerminal) and the settings are 9600 bps, 8 data bits, no parity bits, 1 stop bit, and no flow control.
3. Log into the device; the default username/password is admin/1234.



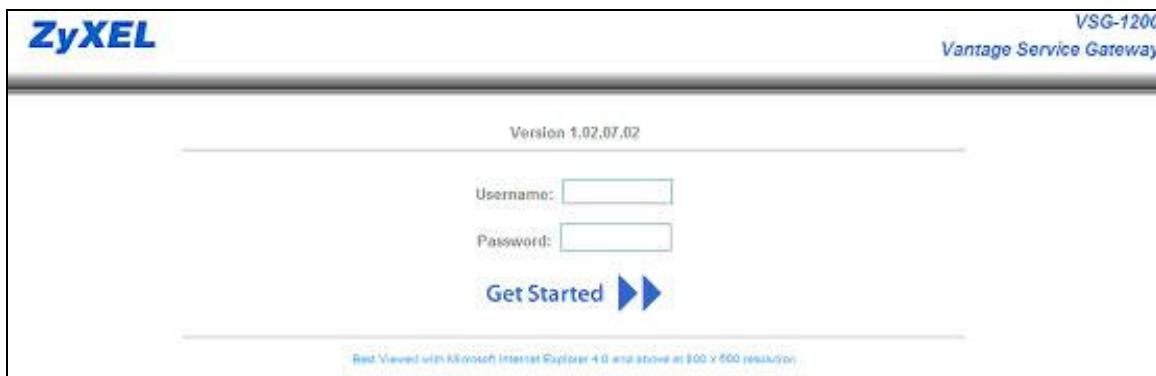
4. Please enter menu 2, and insert the settings for your WAN IP address (the public address provided by your ISP) and DNS Server information. If you don't know what settings you use, contact your ISP for support.



5. After setting these parameters, please continue press the "Enter" until the console shows "S)ave and return Return without saving M)odify:". Please type "S" and press "Enter". Then the system will request to restart.

Connect the Ethernet cable to WAN or LAN

1. Use a crossover cable (typically a red-colored Ethernet cable) from the WAN port of the VSG-1200, connected to directly to your computer's Ethernet port. Alternately, you can connect your PC using the 4 switch ports on the LAN using a standard Ethernet cable.
2. If connected to the WAN, set the computer's IP address in the same subnet with VSG-1200 WAN subnet. If connected to the LAN, then obtain DHCP automatically.
3. Open your web browser and input the VSG-1200 WAN side IP address or LAN side IP address (gateway IP). The login username/password is the same as console.



System parameters setup

1. After logging in, you will see the following page.

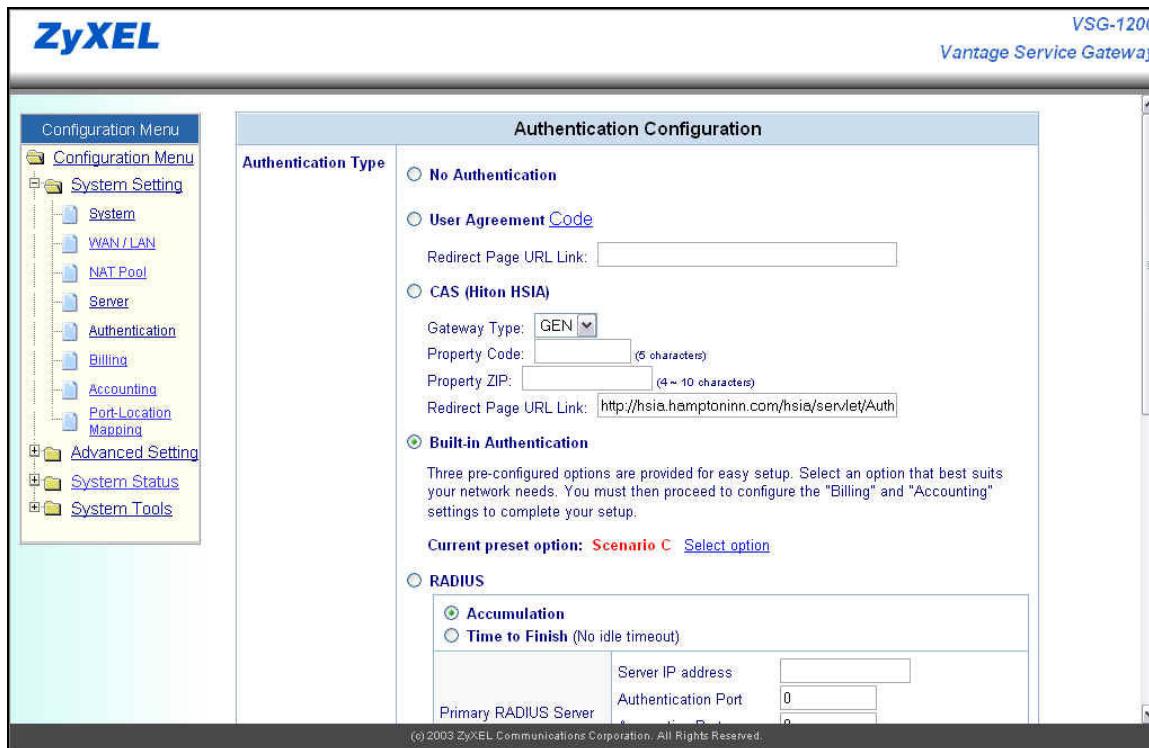
2. Please click the “**Configuration Menu > System Setting > System**” to set the system parameters. First, set the system time.

3. Click the “**System Setting >> Server**” to edit the fields for **DHCP server** and **DNS Server**. If you don’t know what values you should set, you can use the default setting; however, for the sake of this guide, set your DHCP starting address to **10.59.1.30**, with a pool size of **225** (to provide enough IPs for your access points). You must enter DNS for your local side. If you don’t know, please contact your ISP. After you finish this page’s setting, please remember to click “**Apply**”.

Authentication Configuration

Please click the “**System Setting >> Authentication**” to choose the authentication type. Here you can have 5 types of authentication:

1. **No Authentication** – Users do not have to log in with username and password to authenticate.
2. **User Agreement** – Users will be re-directed to a web page (created and hosted by you) that contains the java code that we provide for the “I Agree” and “I Disagree” buttons. Users must agree to the Terms of Service (specified by you) in order to gain access to the internet.
3. **CAS Hilton HSIA** – This authentication type is specific for Hilton/Hampton Inn hotels and affiliated hotels. Contact your HSIA representative for more information.
4. **Built In Authentication** – This option allows you to use the internal database to create accounts. There are three types of scenarios. Please refer to the User Guide for more info.
5. **RADIUS Server Authentication** – This allows you to redirect the authentication to a RADIUS server.



Billing profile setting

1. Please click the “System Setting >> Billing” to set the billing profile
2. Please click the “Profile Setting >> Edit” to edit the profile’s parameters. You can choose a suitable parameter to meet your needs.

Billing Profile Setting				
No	1			
Name	Profile 1			
Description	1 day \$10.00			
Price	Duration	Charge	Check Time	Selective Unit
	<input type="radio"/> 1 minute	0	Period Time finish	From: <input type="text"/> 1 To: <input type="text"/> 10
	<input type="radio"/> 1 hour	0	Period Time finish	From: <input type="text"/> 1 To: <input type="text"/> 10
	<input checked="" type="radio"/> 1 day	10.00	Period Time finish	From: <input type="text"/> 1 To: <input type="text"/> 10
			<input type="radio"/> Expire when <input type="text"/> 00:00	
	<input type="radio"/> 1 week	0	Period Time finish	From: <input type="text"/> 1 To: <input type="text"/> 10
		<input type="radio"/> Expire when <input type="text"/> Sun. <input type="text"/> 00:00		

3. In the **Edit Profile** page, you can limit the bandwidth per customer account.

Bandwidth Limit

Note: You must activate the bandwidth management feature and select a class of service.

Maximum Upstream Bandwidth: 64 Kbps

Maximum Downstream Bandwidth: 256 Kbps

4. After finished the setting, please click the “**Apply**” to save this configuration.

Creating Accounts

If you chose Built-In Authentication, then you can create accounts in three ways:

- **Thermal Printer** – You can use the one-button and three-button printer to create dynamic accounts. For the three-button printer, you can associate a different profile to each button, for a total of three profiles. Username and password are created randomly.
- **Dynamic Account Operator** – You can create a separate admin login for Account Operators that only have access to the Dynamic Account Operator page. There are three buttons on this page that are associated to the first three billing profiles. To create a corresponding account similar to using the thermal printer, click the button and then print out the following pop-up page for account login info.
- **Static Account Generation** – You can create a range of static accounts by specifying the pre-fix, range and post-fix for the username. The passwords are created randomly for all accounts. You can also manually enter static accounts with the usernames and passwords of your choice.

Create Static Account

Generate a batch of static accounts

Prefix: (Maximum 5 numbers)

Postfix: (Maximum 5 numbers)

From: 0 (Maximum 5 numbers)

To: 0 (Maximum 5 numbers)

Billing Profile: Profile 1 Random Password Length: 8

Note: For PMS billing type, use only numbers for subscriber accounts.

Manually Add Subscriber Account

No.	Username	Password	Billing Profile
1	<input type="text"/>	<input type="text"/>	Profile 1
2	<input type="text"/>	<input type="text"/>	Profile 1
3	<input type="text"/>	<input type="text"/>	Profile 1
4	<input type="text"/>	<input type="text"/>	Profile 1
5	<input type="text"/>	<input type="text"/>	Profile 1
6	<input type="text"/>	<input type="text"/>	Profile 1
7	<input type="text"/>	<input type="text"/>	Profile 1
8	<input type="text"/>	<input type="text"/>	Profile 1
9	<input type="text"/>	<input type="text"/>	Profile 1
10	<input type="text"/>	<input type="text"/>	Profile 1

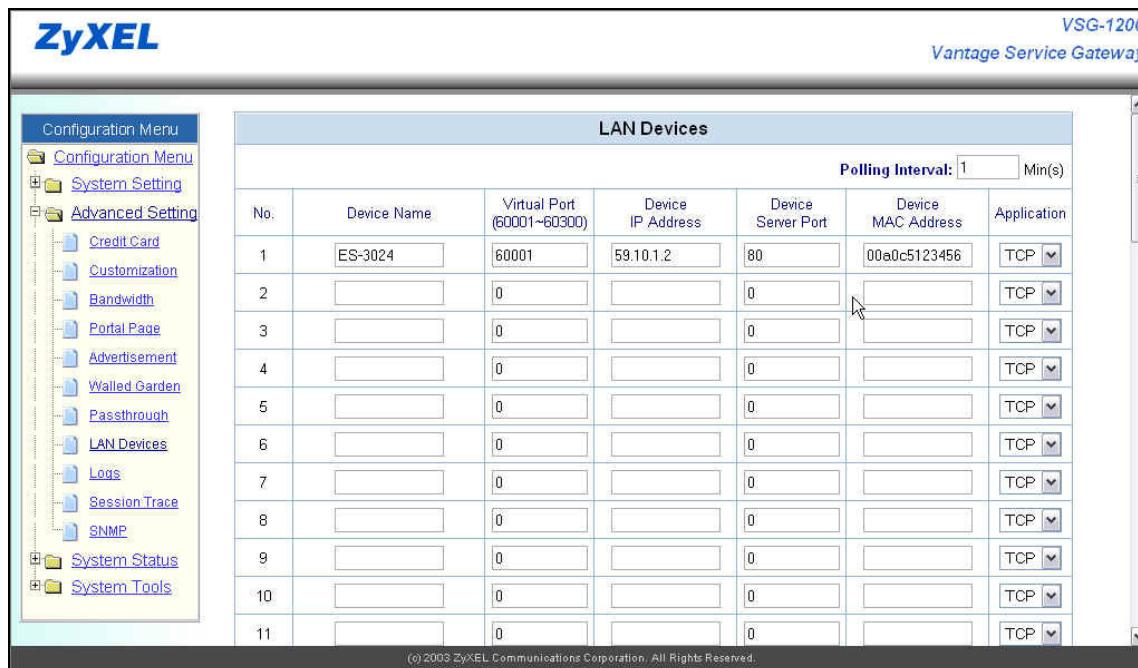
Apply

After finished the setting, please click the “**Apply**” to save this configuration.

Setup LAN device management

You'll need to add LAN device management entries to administrate devices on the LAN side of the VSG-1200 from the LAN side. Use these steps to set up this feature for your ES-2008 switch:

1. Click on “**Advanced Settings >> LAN Devices**”.
2. In the first row, you'll set up an account for your ES-2008 switch. First enter **ES-2008** as the Name. Then, type in **60001** as the Virtual Port. Set the Device IP Address to **10.59.1.2**, and the Device Server Port to **80**. Finally, enter the MAC address from the ES-2008 in the Device MAC Address field (the ES-2008's MAC address is a 12-character code found on the bottom label of the unit, usually in a **00A0C5XXXXXX** format). Leave the Application drop-down set to **TCP**.
3. Click on “**Apply**” when finished.
4. You should now be able to administrate the ES-2008 through the VSG-1200's public IP address by typing the WAN address of the VSG-1200 into your web browser followed by “**.60001**” *For example: <http://65.5.5.10:60001>*



5. Repeat steps 2-4 for each of your VLC1124 VDSL line cards. Remember to use a unique Virtual Port for each card. You can find the MAC address of the Line card on the bottom of the card, or through the card's web interface in the **Statistics** menu.

How to setup the ES-2008

IP address setup

1. The ES-2008 default IP address is the 192.168.1.1. You can enter this IP into your web browser to access the unit's web interface.



2. You can change the IP address from web interface. Please from main menu to click the **“Administrator >> Network Configuration”**, to set the IP address.
3. Please set the IP address to **10.59.1.2**, subnet mask to **255.255.255.0**, and the gateway to **10.59.1.1**.

IP Address	10.59.1.2
Subnet Mask	255.255.255.0
Gateway	10.59.1.1

Apply **Help**

4. Please click the **“Apply”** to save the configuration.
5. If you haven't already done so, set up **LAN Device Management** in the VSG-1200 for the ES-2008 switch. Refer to the material above for more information.
6. After you set the mapping table, please try to log into ES-2008 from WAN of VSG-1200 using the VSG-1200's WAN address and the Virtual Port assigned to the ES-2008.

VLAN setup

1. From the main menu, go to **“Administrator >> Switch Configuration”**.
2. In the **Protocol Enable Setting** section, please choose **“Port Based”** in the **VLAN Operation Mode** drop-down field.

Protocol Enable Setting

Enable Spanning Tree Protocol

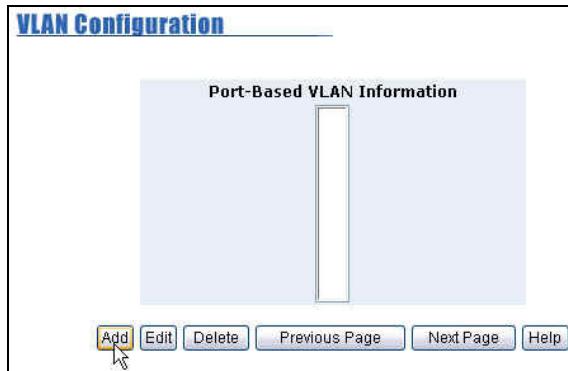
Enable IGMP Protocol

IGMP Query Mode: **Auto**

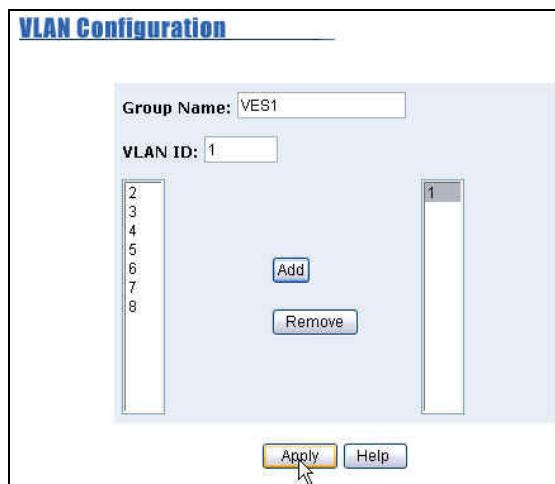
VLAN Operation Mode: **Port-Based**

Default **Help**

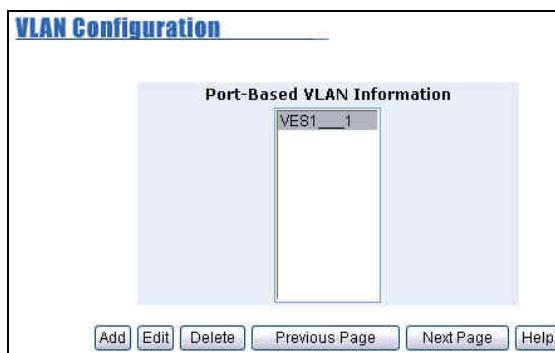
3. For the rest of this page, you don't need to set any parameters. Click on **Apply** at the bottom of the page to save this setting. If you are interested, refer to the User's Guide for further information on additional settings.
4. From the main menu, go to "**Administrator >> VLAN Configuration**".
5. Initially there will be no VLAN entries. Because we will need to isolate each VES-1124, each port will need to be on its own VLAN. Begin creating the VLANs by clicking the **Add** button.



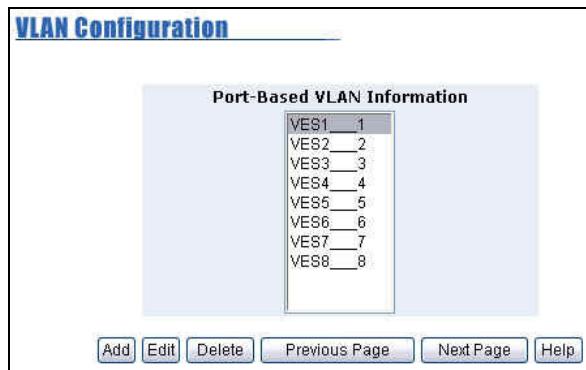
6. Begin by giving the VLAN group a name (ex.: VES1). Make the first group VLAN ID 1. Add ONLY port 1 to this VLAN group by selecting it from the left column and using the **Add** button to move it to the right column. When finished, click the **Apply** button to save the VLAN group.



5. When you are finished you will be returned to the main VLAN Configuration menu, with your new VLAN group now present.



6. Repeat steps 1-4 for the remaining seven ports, creating a VLAN for each port. When you are finished, your VLAN Configuration menu should look similar to the picture below.

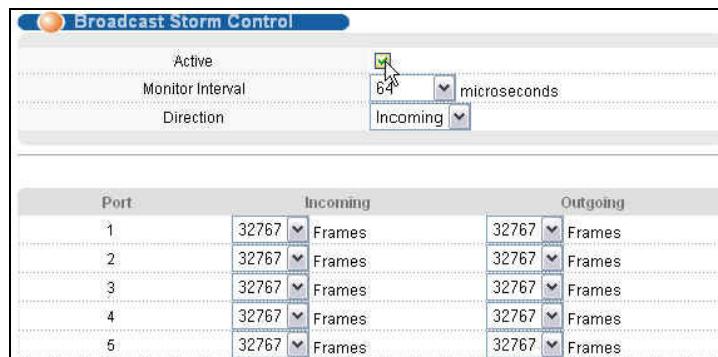


This configuration of the ES-2008 is quick and easy to set up and support. If you need to know more details regarding other functions of the ES-2008, please refer to the User's Guide.

Enable Broadcast Storm Control

Broadcast Storm Control is a mechanism within the switch that keeps any given port from flooding the switch with too many data packets. This mechanism is used primarily when one or more switches are looped together (to keep redundant traffic from being re-broadcasted), but can also be useful if a hacker or virus attempts to deny service to network users by overloading the network with traffic.

1. From the main menu, go to **“Advanced Application >> Broadcast Storm Control”**.
2. Click on the **Active** box to enable the feature.



3. Remember to click the **Apply** button on the bottom of the page to save your setting.

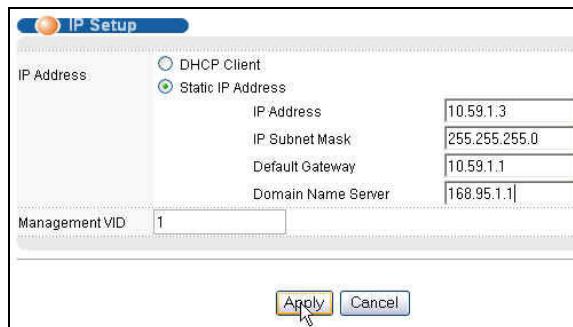
How to setup VES-1124

IP address Setup

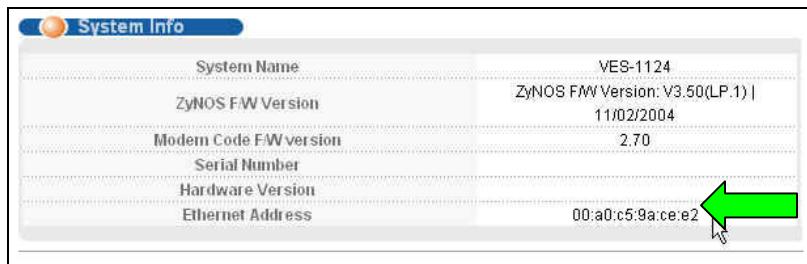
1. The VES-1124 default IP address is the 192.168.1.1. You can change the IP address from Web.



2. From main menu to click the “**Basic Settings >> IP Setup**”, to program the unit’s IP address. Please set the IP address to **10.59.1.3**, subnet mask to **255.255.255.0**, the gateway to **10.59.1.1**, and the DNS to **168.95.1.1**. If you don’t know the DNS, you can set the value to the VSG-1200’s IP address. Otherwise, contact your ISP for your DNS information.
3. Please click the “**Apply**” to save the configuration.



4. If you haven’t already done so, set up **LAN Device Management** in the VSG-1200 for the VLC1124 card. Refer to the material above for more information. You can find the MAC address of the VES-1124 in the **Main Menu** underneath the **System Info** section.



5. After you set the mapping table in the VSG-1200, please try to log into VES-1124 from WAN side of your VSG-1200.

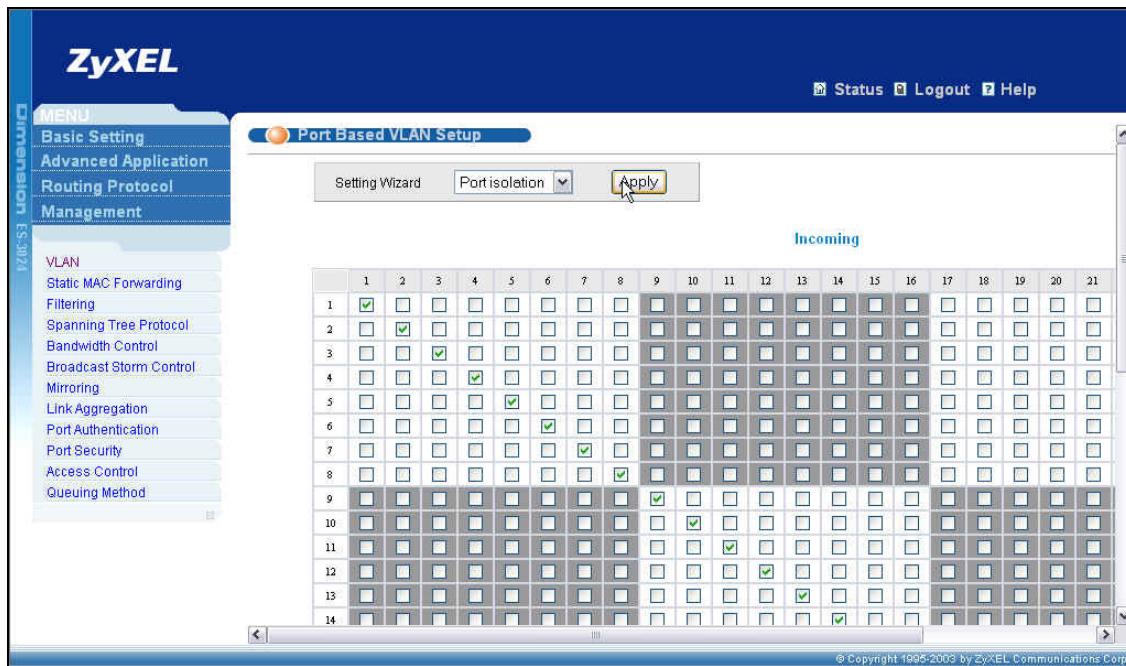


VLAN setup

1. From the main menu, go to "**Basic Settings >> Switch Setup**".
2. Please choose "**Port Based**" in the VLAN type drop-down field.



3. For the rest of this page, you don't need set any parameters. Click on **Apply** at the bottom of the page to save this setting. If you are interested, refer to the User's Guide for further information on additional settings.
4. From the main menu, go to "**Advanced Application >> VLAN**".
5. Please choose "**Port Isolation**" in the **Preset Value** field. This table setting means the each Ethernet port cannot transmit data with others, keeping guests from snooping onto other guests' computers.



6. Please note on this menu there is also a “CPU” row. This row gives VES-1124 access rights to the corresponding ports. Be default, you will be able to administrate the VES-1124 from ports 25 and 26. **DON NOT ALTER THESE SETTINGS** unless you are absolutely sure; otherwise, you may inadvertently lock yourself out of the unit.

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	23					
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	24							
<input checked="" type="checkbox"/>	25									
<input checked="" type="checkbox"/>	26									
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	CPU							
18	19	20	21	22	23	24	25	26		

VDSL ports and profile setup

You are able to control priority and bandwidth on each VDSL port. Normally, all users will have the same priority, but it may be necessary to change traffic priority or to increase or decrease the transmission rate of users, in order to distribute bandwidth fairly or by priority. The following steps outline how to adjust these settings.

1. Please click the “**Basic Settings >> VDSL Profile Setup**” to enter the VDSL profiles.
2. You can name the profile per your preference (i.e.: Hotel-Guest). Select your **Downstream Line Rate** and **Upstream Line Rate** from the respective dropdown menus, and enable **Rate Adaptive Decrease Mode**.

The screenshot shows the 'VDSL Profile Setup' window. At the top, there are fields for 'Name' (set to 'Hotel-Guest'), 'Downstream Line Rate' (set to '12.50Mbps'), and 'Upstream Line Rate' (set to '12.50Mbps'). Below these are radio buttons for 'Rate Adaptive' (selected) and 'Fixed Mode' (unselected). At the bottom of the main window are 'Add', 'Cancel', and 'Clear' buttons. Below the main window is a table with columns 'Name', 'Line Rate', 'Applied Ports', and 'Delete'. It contains two rows: one for 'DEFVAL' (Line Rate 12M/12M, Applied Ports 1-24) and one for 'Hotel Guest' (Line Rate 12M/12M, Applied Ports 1-24). At the bottom of this table are 'Delete' and 'Cancel' buttons.

3. Please click the “Add” to add a new VDSL profile.

The screenshot shows the VDSL profile list. It includes columns for 'Name', 'Line Rate', 'Applied Ports', and 'Delete'. It lists two profiles: 'DEFVAL' (Line Rate 12M/12M, Applied Ports 1-24) and 'Hotel Guest' (Line Rate 12M/12M, Applied Ports 1-24). At the bottom are 'Delete' and 'Cancel' buttons.

4. In the **Basic Settings** menu, click the “**Port Setup**” link to edit the port’s parameters. Each port will have a default name in the **Name** field, which you may change per your preference for easy reference (i.e.: Room101). Choose the **Profile** name that you just created in the previous steps (i.e.: Hotel-Guest). Repeat these actions for each port that you need to alter.

The screenshot shows the 'Port Setup' table. It has columns for 'Port', 'Active', 'Name', 'Type', 'Profile', 'Flow Control', and '802.1p Priority'. There are 8 rows, each representing a port (1-8). The 'Profile' column for all ports is set to 'DEFVAL', except for port 3 which is set to 'Hotel Guest'. The 'Flow Control' and '802.1p Priority' columns are mostly checked (checked for ports 1, 2, 4, 5, 6, 7, 8). The 'Name' column shows default names like 'Room 101', 'port02', etc.

5. When you are finished, click the “**Apply**” to save the configuration.

If you would like to know the VES-1124’s other settings, please refer the User’s Guide.

Support

Now, if you followed the procedures to setup the VSG-1200, ES-2008 and VES-1124Ls, your Internet service should work in your environment. If you still have any problems, feel free to contact us:

North America - Zyxel Communications Inc.

1130 North Miller Street, Anaheim, CA 92806-2001 U.S.A.

Toll Free: +1-800-255-4101

Tel: +1-714-632-0882

Fax: +1-714-632-0858

Email: sales@zyxel.com

<http://www.us.zyxel.com>

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